Subject: Re: will RSI support HDF5?
Posted by Liam E. Gumley on Tue, 23 Oct 2001 14:44:40 GMT
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H C Pumphrey wrote:
[stuff deleted]
> Now, NASA's EOS program is (a) a Large IDL customer, and (b) is actively
> switching from HDF4 to HDF5. Do I have to go on?

I have been involved with the NASA EOS project for about 10 years, and I can tell you there is a rather large existing code base (in IDL, Matlab, C, FORTRAN, Java, etc.) that assumes HDF4 will be supported by NCSA for many years to come. To say that EOS is switching to HDF5 is overstating the case. Some background may be in order.

In the early 1990s the EOS project chose to develop a wrapper API for HDF4 that was named HDF-EOS. The intent was to provide an API targeted towards earth science datasets that came in three flavors: Swaths (e.g., satellite images), Grids (e.g., numerical weather prediction input/output), and Points (e.g., profiles of temperature through the atmosphere). However it is important to realize that a HDF-EOS file is just a specialized instance of a HDF4 file. Any HDF-EOS file can be read using HDF4, because HDF-EOS files are built by combining various HDF4 objects (SDS and Vdata arrays) in a special way.

Because of this fact, many EOS developers chose to develop code that *reads* HDF-EOS product files (from MODIS for example) using the HDF4 API, because the HDF4 API allows more flexibility in how EOS product files are interpreted. For example, the MODIS Level-1B HDF-EOS product reader I developed (available at ftp://origin.ssec.wisc.edu/pub/MODIS/IDL/) reads the input file using HDF4 calls *only*. I know many other developers who have used this approach successfully in IDL, Matlab, C, FORTRAN, Java, and other languages.

The EOS project is now *suggesting* that developers may wish to use a new version of HDF-EOS that uses HDF5 as the underlying format (the API remains unchanged). I believe it will be up to the individual EOS instrument teams to decide whether they wish to use the new HDF-EOS version. I expect the MODIS team will continue to use the HDF4 version of HDF-EOS for the lifetime of the Terra and Aqua spacecraft.

The impact on IDL is that I expect RSI to continue to support HDF4 indefinitely. I also expect IDL to support a new HDF5 API in the future, in addition to, and *not* instead of, the current HDF4 API. With regard to HDF-EOS support in IDL, I think it's possible to envision a smart API that checks the format of the input file to see if it's written in HDF4 or HDF5 flavor, and then handling it appropriately.

Cheers,
Liam.
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